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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,671	02/10/2004	Krzysztof Matula	1287-7	1133

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EXAMINER	
VU, TUAN A	

ART UNIT	PAPER NUMBER
2193	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/775,671	MATULA ET AL.	
	Examiner	Art Unit	
	Tuan A. Vu	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *2/10/04* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/10/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to the application filed 2/10/2004.

Claims 1-13 have been submitted for examination.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 5-10, 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Euroloader, "Technical Specification of a European Loader for Multimedia Terminals for Cable and Cable Modems", December 2001, pp. 1-60 (hereinafter Euroloader).

As per claim 1, Euroloader discloses a data signal receiver programmed with a loader comprising:

a processor containing a signal processing block (e.g. *main processor* – sec 1, pg. 10: Introduction), an initiating block (e.g. *starter* - sec 2.1.1, pg.13 -Note: starter with minimum update functionality reads on initiating code – see Fig. 2, pg. 18: starter, bootstrap) initiating the loader, and a loader control block (e.g. Modulo 0… executable code is the loader - pg. 21) servicing the loader based on a code initiated by the initiating block;

signal-receiving block (see Fig. 4, layer structures - pg. 20-21; digital signal, NIT – Diagram 2, pg. 28);

interfaces linked to the processor (e.g. processor – Introduction, pg 10, top);

RAM, ROM, and NV-RAM memory linked to the processor (sec 3.4, pg. 17); and

non-volatile memory linked to the processor, wherein a decompressing program of the loader (sec 6.5, pg. 37 – Note: starter code stored in ROM to check integrity of downloaded loader – see sec 6.2, pg. 35 -- reads on decompressing program – as per MD5 calculation -- see pg. 37, see Diagram 7, pg. 38) and the loader in a compressed form are stored in the non-volatile memory (e.g. Fig. 6; Fig. 2; see Diagram 7, pg. 38; Diagram 9, pg. 42) and after being decompressed, by the decompressing program, the loader is stored in a section of the RAM memory, the section being declared as ROM memory (sec 5.7, pg. 26-27; *successfully verified ... loaded takes control ... ROM* - sec 6.2, pg. 35).

As per claim 5, Euroloader discloses wherein the loader's code after decompressing is located at a permanent address in the RAM memory (e.g. must start the update – pg. 35, bottom; *Start operational software* – Diagram 7, last step, pg. 40 – Note: loader after hash checked and starting in executable form intrinsically discloses executing from RAM – see Fig. 6, pg. 23).

As per claim 6, Euroloader discloses wherein the non-volatile memory is FLASH memory (FLASH – Diagram 7, pg. 40; Fig. 6, pg. 23).

As per claim 7, Euroloader discloses a method for updating software in a data signal receiver having a processor and interfaces, RAM, ROM, NV-RAM and non-volatile memory linked to the processor (refer to claim 1) comprising:

storing of software containing a loader in a compressed form in the non-volatile RAM memory (Fig. 6; Fig. 2; see Diagram 7, pg. 38; Diagram 9, pg. 42); and upon initiating startup procedure (e.g. *starter* - sec 2.1.1, pg.13 -Note: starter with minimum update functionality reads on initiating code – see Fig. 2, pg. 18: starter, bootstrap), copying the software to a permanent

address in a section of the RAM memory (refer to claim 5), declared as ROM type memory prior to a software linking process (FLASH – Diagram 7, pg. 40; Fig. 6, pg. 23).

As per claims 8-10, Euroloader discloses wherein a startup procedure of the loader is executed upon connecting the data signal receiver to a power source (e.g. *starter ...bootstrap... main power* – sec 5.6, pg. 26; see Fig.2 pg. 18); wherein a startup procedure of the loader is initiated at a user's request (request from the customer – sec. 5.6); wherein a startup procedure of the loader is initiated by an external signal (e.g. processor reset, main power, from customer, from application software – sec 5.6; sec 5.8, pg. 27), transmitted to the data signal receiver.

As per claim 13, Euroloader discloses checking whether a software currently broadcasted (sec 1.2, pg. 11 – Note: Broadcast service by Euroloader to ensure that no registered terminal should operate with unsupported software by the provider entails broadcasting to all terminals of provider network of user – see Broadcast Descriptor – Diagram 3, pg. 29) in the data signal is meant for the data signal receiver (see sec 5.2.1 pg. 24; sec 5.2.2 pg. 25; *Descriptor* - Diagram 2-5, pg 28-30; Diagram 6, pg. 34), in which the loader has been initiated after initiating an application update procedure; and accepting the application update procedure when the program currently broadcasted in the data signal is meant for the data signal receiver, in which the loader has been initiated (sec 6, pg. 35-42; Diagram 7, pg. 40).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Euroloader, "Technical Specification of a European Loader for Multimedia Terminals for Cable and Cable Modems", in view of Defosse et al. USPubN: 2003/0097474 (hereinafter Defosse)

As per claim 2, Euroloader does not disclose wherein the signal processing block is connected to the data source through a GSM signal transmitting/receiving block and/or an external interface block. But at the time the invention was made, the use of firmware and flash memory for resources restraint devices like in Euroloader's user terminal (see Introduction, pg. 10) for network distribution of update was well-known, and accordingly, Defosse, in a distribution network where Flash memory of remote devices can be used to store download in a compressed form (see Fig. 1-3) via communication with a server similar to Euroloader, discloses the terminal device being PDA, laptop or mobile phone operating within a WAP network or wireless network including a GSM (para 0031, pg. 3; para 0040, pg. 4). It would have been obvious for one skill in the art at the time the invention was made to implement the distribution of Euroloader so that the network to distribute compressed software to user's terminal would be a wireless network including a GSM for mobile telephony because this would enable the distribution technique by Euroloader to also encompass and support upgrade distribution of software to user when the wireless user's devices, enabling thereby Euroloader to scale its product applicability to more than one network distribution protocol in view of the communication capability and growth as explained in Defosse (BACKGROUND, pg. 1).

6. Claims 3-4, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Euroloader, "Technical Specification of a European Loader for Multimedia Terminals for Cable and Cable Modems", in view of Tuttle, USPN: 5,325,377 (hereinafter Tuttle)

As per claims 3-4, Euroloader discloses wherein an memory image is created from a section containing a loader's booting sequence (bootstrap code – Fig. 2, pg. 18; Fig. 1, pg. 17), and a section containing a segment with loader's static data (descriptor, information, pointer, InfoBytes, InfoIndication - sec 4.3, pg. 20) and loader's code (e.g. Fig. 1, Flash pg. 17 -- Note: loader software downloaded stored in FLASH along with info data combined with starter code -- as per section 2.1.1, pg 12; new software … during download - sec 3.4, para 2– reads on memory image containing fix information code, starter code and loader code) wherein the memory image is stored in non-volatile memory in a compressed form (e.g. *verify hash of the entire … image* – sec 4.3, pg. 23)

But Euroloader does not explicitly disclose image containing a section containing a loader's *jump table*, wherein the loader's jump table contains addresses of functions common to a decompressing program and the loader, the functions are defined in the decompressing program. The technology of embedded processing system with booting via a loader has been a well known concept at the time the invention was made. Tuttle, in a paradigm of inter-communication wherein a video processing subsystem receiving from a host firmware --analogous to Euroloader's terminal device receiving flash-bound software in a encrypted form-- discloses using verifying of the downloaded video image for integrity and using initialization routines (e.g. Fig. 3-4; jump table – col. 12, line 66 to col. 13, line 40; col. 12, li. 24-48) with modification of address in a 'jump table' associated with the routines dynamically with the state of the integrity checking and initialization routines. Based on the descriptor and pointer information provided in the download software in the FLASH by Euroloader (see Euroloader: sec 4.3 - pg. 20-21; sec 7.8 … *Compressed_module_descriptor* - pg. 51) whereby linkage to the main loading of the

initiation program can be checked for integrity (see Euroloader: Diagram 2-9; sec 6, pg. 35-42) and the analogous usage of boot loader in embedded system approach by Euroloader's modem, it would have been obvious for one skill in the art at the time the invention was made to implement a *jump table* in the FLASH and enabling in the verification process by Euroloader, so that such table includes jump address to a verification software section for performing hash verification, or decompressing downloaded modules. One of ordinary skill in the art based on the known practices in embedded system, would be motivated to do so because that Euroloader's use of pointer referencing in the course of descriptor mapping and loading of properly checked code in RAM can effectuate the dynamically relocating of branch address (via a jump table) during such verification, as examplified by Tuttle, and thereby enabling proper verification of FLASH and alleviate linkage resources to the main program in RAM via dynamically adjustment of branch/jump addresses as set forth above.

As per claims 11-12, refer to the rationale addressing the jump table limitation in claims 3-4.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan A Vu whose telephone number is (571) 272-3735. The examiner can normally be reached on 8AM-4:30PM/Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571)272-3756.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-3735 (for non-official correspondence - please consult Examiner before

using) or 571-273-8300 (for official correspondence) or redirected to customer service at 571-272-3609.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan A Vu
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October 09, 2007